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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/401,352	09/27/1999	DAVID L. NAYLOR	74557	4565

7590 03/17/2003

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EXAMINER
FERRIS III, FRED O

ART UNIT	PAPER NUMBER
2123	

DATE MAILED: 03/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/401,352	NAYLOR ET AL.	
	Examin r	Art Unit	
	Fred Ferris	2123	

-- The MAILING DATE of this communication app ars on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 27 December 2002 .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-32 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-32 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 27 December 2002 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. Claims 1-32 have been presented for examination based on applicant's amendment filed on 27 December 2002. Claims 1-32 remain rejected by the examiner.

Response to Arguments

2. Applicant's arguments filed on 27 December 2002 have been fully considered.

Regarding applicant's response to objection to the drawings: Applicant's have submitted formal drawings that have been approved by the examiner pending review by the draftsperson. Objection to the drawings is withdrawn.

Regarding applicant's response to objection to the title: Applicant's have amended title. Objection to the title is withdrawn.

Regarding applicant's response to 35 U.S.C. 112(1) rejection: Applicants have argued that the claim 1 limitation relating to "creating ***graphical representation of the physical system*** *at the remote location showing elements and connections of the system to be assembled" is enabled by specification page 8, lines 5-25 and figures 3-6. The examiner assets that while the specification makes reference to "different applications" such as SPICE being found to "work well" for creating graphical representations, it does not specifically teach the process nor does it specifically describe how any of these different (well known) applications would be adapted to work with the claimed invention. Further, figures 3-6 merely show screen-shots that are typical of any popular CAD program, such as SPICE, and do not specifically teach the "****process****" for creating a the graphical representation of a* ***physical system*** *at the*

remote location showing elements and connections in sufficient detail to allow one skilled in the art to make and/or use the invention.

*Applicants have further argued that the claim 1 limitation relating to "converting the graphical representation into an element list delineating the elements, interconnections, and configurable properties of the elements" is enabled by the specification in locations including page 5, line 22-25; page 11, lines 5-27; page 3, lines 22-24, and page 9, lines 2-5, and 15-17. The examiner asserts that while the specification states that the client program sends a "text file" (netlist) in "SPICE format" to the Server program and that the MRBCompiler **"converts"** the MRBCiruit into an element list, and further states that the graphical representation of the system is **"converted"** by a conversion processor, it does not teach the **conversion process**. The specification gives no indication of specifically how the conversion is accomplished by the claimed invention sufficient to allow one skilled in the art to make and/or use the invention. For example, no steps or process description is given of specifically how MRBCompiler **converts** the MRBCiruit into an element list as stated on page 5, line 29.*

Applicants have also argued that "transferring an element list" is enabled by the specification. The examiner reminds applicants that this limitation has not been rejected under 112(1). (please see previous office action, paper 5)

Applicants have also argued that the specification provides enablement for the limitation relating to "assembling and operating the system by the element controller in accordance with the element list" on page 3, line 28 thru page 4 line 2 and page 11, line 11 thru page 12, line 16. The examiner asserts that page 3, line 28 of the specification

merely states that the element list is "checked for errors" and that MRB 16 determines if it has the physical elements needed to "construct and operate the physical system" and, hence, does not provide enablement for assembling and operating the system. Line 31 then states: "If it does, MRB 16 assembles the physical system". However, none of the text following this statement gives a description of specifically ***how*** *the MRB 16* ***assembles*** *the physical system sufficient to allow one skilled in the art to make and/or use the invention.*

Since the specification has not disclosed otherwise, the examiner assumes that the claimed inventions' limitations relating to creating ***graphical representation*** *of the physical system,* ***converting the graphical representation*** *into an* ***element list****, and assembling and operating the system are merely features that are inherent to the SPICE program. Accordingly, the examiner maintains the 112(1) rejection.*

Regarding applicants' response to 35 U.S.C. 103(a) rejections: Applicants are reminded that in the previous office action the examiner made the following statement regarding the 35 U.S.C. 103(a) rejection:

"The specification for the claimed invention is delinquent in the areas cited above (see 112(1) rejection). Accordingly, the examiner has made ***prior art rejections*** *based on the* ***limited scope of the information*** *provided in the disclosure."*

*In general, applicants have argued that prior art does not teach the limitations of independent claims relating to "****assembling and operating*** *the system by the* ***element***

controller *in accordance with the* ***element list****". The examiner asserts that an* ***element list*** *as disclosed by the specification (page 11, line 11) is merely as list of elements describing the physical system (****design information****) and is taught by Van Huben (i.e. element lists, net lists etc., CL80-L59) as previously cited. Forcing functions are merely the associated physical system element requirements (i.e. current and voltages, etc., See spec. page 11, line 27) and are also taught by Van Huben (Figs. 8-11). Further, the claimed* ***element controller is*** *loosely described by the specification as performing the function of assembling and operating the system in accordance with the element list. Since, as cited above under 112(1) rejections, the specification has not disclosed specifically how the assembling and operating of the system is actually performed, the examiner has assumed this process is analogous to the control and process management of Van Huben (Fig. 16) and Kodosky (Fig. 7). Accordingly, the examiner upholds the 103(a) rejections.*

Claim Rejections - 35 USC § 112

3. Claims 1-32 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for "transferring an element list from the remote location to an element controller", ***does not reasonably provide enablement for the following:***

Independent Claims 1 and 13:

-creating **graphical representation of system** at remote location (elements/connections)
-converting graphical representation to **list (elements/interconnection/properties)**
-assembling/operating system by element controller
Dependent Claims 2-12, 14-23:
-providing GUI and **graphical display of structural elements**, forcing functions and measurement instruments (dragging icons reference to assembly area)
-connecting icons of elements in **assembly area**
-spawning task object in element controller on receipt of element list
-composing task object from user-requested task elements
-composing modified task object from task elements and **validating parameters**
-assembling system comprising **closing contacts** in matrix switch connecting forcing function to assembled elements

Independent Claim 24:
-conversion processor to convert graphical representation to list (elements/interconnections)
-communication processor to transfer element list from remote location to element controller
-element controller to assemble/operate system IAW element list
Dependent Claims 25-32:
-connector routine to connect icons of elements within assembly area
-task object to decompose element list into set of task elements
-forcing function to load the physical system

The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims. Specifically, while the reference makes reference to creating, converting, and assembling, from "a graphical representation of the system", it does not teach the process or provide an algorithm or methodology that would allow one of ordinary skill to make and/or use the invention. The specification makes reference to performing ***tests*** *and* ***measurements*** *(also, "test results" and "measurement capabilities") but does specifically not teach how the tests or measurements are performed. Further, while terms such as "task object", "resource*

allocating object" and "matrix object" are mentioned in the specification, no definition or explanation is given as to precisely what information is contained in these objects or specifically how they are used by the system. The operation of the conversion, communication, and element processors/controllers are also not described in a manner that would allow one of ordinary skill to make and/or use the invention. In general, the specification appears to be a "wish list" of features and does not specifically teach how these features are actually realized in the invention.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,121,965 issued to Kennedy et al, in view of U.S. Patent 5,950,201 issued to Van Huben et al, in further view of U.S. Patent 5,821,934 issued to Kodosky et al.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

The specification for the claimed invention is delinquent in the areas cited above (see 112(1) rejection). Accordingly, the examiner has made prior art rejections based on the limited scope of the information provided in the disclosure.

Claims 1-12 are drawn to:
method of **assembling/operating physical system from remote location** and:
creating **graphical representation of system** at remote location (elements/connections)
converting graphical representation to **list (elements/interconnection/properties)**
transferring element list from remote location to element controller
assembling/operating system by element controller
providing GUI and **graphical display of structural elements**, forcing functions and measurement instruments (dragging icons reference to assembly area)
connecting icons of elements in **assembly area**
spawning task object in element controller on receipt of element list
composing task object from user-requested task elements
composing modified task object from task elements and **validating parameters**
assembling system comprising **closing contacts** in matrix switch
connecting forcing function to assembled elements
recording system response to forcing function
transferring graphical representation of system response to remote location
defining element list as **netlist**

*Regarding claims 1-12: Kennedy teaches creating a **graphical representation of a system** containing **elements and connections** (Fig. 3-5) in an on-screen workspace area (Fig. 2), providing **GUI** and **graphical display of structural elements, connecting icons of elements** in an **assembly area** (dragging icons) to **assemble** a completed system design. (Abstract, Summary of Invention (especially, CL2-L27-33,*

CL47-L47-52), CL5-L13-45, CL4-L7-37, Figs. 1-6) In addition to being taught by Kennedy, these features are well known in the art and available on nearly ***any*** *commercially available CAD/CAM software package. (Mentor, Cadence, Spice, AutoCad, etc.)*

Kennedy does not explicitly teach facilitating the remote manufacturing of a physical structure.

Van Huben teaches a system for concurrent engineering and facilitating the ***remote manufacturing*** *(world wide via terminals) of a* ***physical system*** *by coordinating the transfer of* ***design information to remote locations (graphical representation, element lists (net lists), etc.)*** *(CL80-L59), and further teaches* ***tracking (recording)*** *the system response and remotely* ***spawning (launching) tasks*** *(CL20-L28-31) that can be* ***user composed/modified****. (Abstract, Summary of Invention, CL20-L54-CL23-L15, Figs. 1, 10, 16) These techniques, in particular creating and spawning tasks, in addition to being taught by Van Huben, are also well known in the art.*

Kennedy further does not explicitly teach validating design parameters.

Kodosky teaches the ***validation of design parameters*** *and further teaches the* ***conversion*** *of data parameters (CL40-L58) the* ***transferring of system*** *response parameters and* ***graphics data****. (CL11-L23-51, Fig. 5) Kodosky also teaches recording and transferring test parameters (waveforms, timing, voltage measurements, etc) and again teaches the graphical representation and interconnection of system components.*

(Abstract, Summary of Invention, CL4-L10-15, CL9-L54-CL10-L64, Figs. 5, 6,11-12, 19-28, 38, 42-88, 91)

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teaching of Kennedy relating to creating a ***graphical representation of a physical system*** *containing* ***elements and connections*** *in an on-screen workspace area, with the teachings of Van Huben relating to concurrent engineering and facilitating the* ***remote manufacturing*** *(world wide) of a* ***physical system****, and to further modify the teachings of Kennedy with the teachings of Kodosky relating to the* ***validation of design parameters*** *and the* ***conversion*** *of data parameters, to realize the claimed invention. An obvious motivation exists since, as referenced by prior art, remotely managing collaborated design and prototyping allows design parameters to be easily, accurately, and expediently changed. It would further have been obvious, and necessary, to include the features relating to assembling system* ***matrix switch*** *and* ***forcing function*** *elements.*

Regarding claims 13-23: Claims 13-23 are merely claim the ***apparatus*** *and* ***means*** *for the features outlined in claims 1-12 and are therefore rejected using the same reasoning as previously cited above.*

Claims 24-32 are drawn to:
Apparatus for **assembling/operating physical remote location** and:
remote terminal to create graphical representation of elements and connections
conversion processor to convert graphical representation to list (elements/interconnections)
communication processor to transfer element list from remote location to element controller
element controller to assemble/operate system IAW element list

GUI for graphical representation of structural elements, forcing functions and measurement instruments.
pointer to drag icons of elements to graphical representation in assembly area
connector routine to connect icons of elements within assembly area
task object to decompose element list into set of task elements
forcing function to load the physical system
measurement instrument to record system response to forcing function
matrix switch to interconnect structural elements forcing function measurement instrument
task object to transfer graphical representation of system response to remote location

Regarding claims 24-32: As previously cited, Kennedy teaches creating a ***graphical representation of a system*** *containing* ***elements and connections*** *(Fig. 3-5) in an on-screen workspace area (Fig. 2), providing* ***GUI representation*** *and* ***graphical display of structural elements, connecting icons of elements*** *in an* ***assembly area*** *(****pointing/dragging icons****) to* ***assemble*** *a completed system design via a* ***connector routine****. (Abstract, Summary of Invention (especially, CL2-L27-33, CL47-L47-52), CL5-L13-45, CL4-L7-37, Figs. 1-6) In addition to being taught by Kennedy, these features are well known in the art and available on nearly* ***any*** *commercially available CAD/CAM software package. (Mentor, Cadence, Spice, AutoCad, etc.) Kennedy further discloses an processor (Fig. 1A) that controls elements (****element processor****) on a standard PC work station (terminal including a pointing device) that can be* ***communicated*** *with remotely. (CL3-L14-64)*

Kennedy does not explicitly teach facilitating the remote manufacturing of a physical structure.

Van Huben teaches a system for concurrent engineering and facilitating the ***remote manufacturing*** *(world wide via terminals) of a* ***physical system*** *by*

*coordinating the transfer (via **communication process**, Fig. 16-8, CL66-L41-CL67-L24) of **design information to remote locations (graphical representation, element lists (net lists), etc.)** (CL80-L59), and further teaches **tracking (recording)** the system response and remotely **spawning (launching) tasks** (CL20-L28-31) that can be **user composed/modified**. (Abstract, Summary of Invention, CL20-L54-CL23-L15, Figs. 1, 10, 16) These techniques, in particular creating and spawning tasks, in addition to being taught by Van Huben, are also well known in the art.*

Kennedy further does not explicitly teach validating design parameters.

*Kodosky teaches the **validation of design parameters** and further teaches the **conversion** (conversion process) of data parameters (CL40-L58) the **transferring of system** response parameters and **graphics data**. (CL11-L23-51, Fig. 5) Kodosky also teaches recording and transferring test parameters (waveforms, timing, voltage, **instrument measurements**, etc) and again teaches the graphical representation and interconnection of system components. (Abstract, Summary of Invention, CL4-L10-15, CL9-L54-CL10-L64, Figs. 5, 6,11-12, 19-28, 38, 42-88, 91)*

*It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teaching of Kennedy relating to creating a **graphical representation of a physical system** containing **elements and connections** in an on-screen workspace area, with the teachings of Van Huben relating to concurrent engineering and facilitating the **remote manufacturing** (world wide) of a **physical system**, and to further modify the teachings of Kennedy with the teachings of Kodosky relating to the **validation of design parameters** and the **conversion** of data*

parameters, to realize the claimed invention. An obvious motivation exists since, as referenced by prior art, remotely managing collaborated design and prototyping allows design parameters to be easily, accurately, and expediently changed. It would further have been obvious, and necessary, to include a system ***matrix switch*** *for interconnecting* ***structural elements*** *in order to accommodate the* ***forcing function*** *and* ***measurement instrument*** *since the system is required to externally "switch in" and "force" a* ***load*** *on the circuit element, and then* ***take measurements*** *to* ***record system response*** *to the* ***forcing function****.*

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, ***THIS ACTION IS MADE FINAL****. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).*

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure, careful consideration should be given prior to applicant's response to this Office Action.

U.S. Patent 5,572,430 issued to Akasaka teaches remote manufacturing design and validation.

U.S. Patent 5,511,108 issued to Severt teaches remote test monitoring and validation.

U.S. Patent 6,202,070 issued to Nguyen teaches remote computer manufacturing.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred Ferris whose telephone number is 703-305-9670 and whose normal working hours are 8:30am to 5:00pm Monday to Friday.

Any inquiry of a general nature relating to the status of this application should be directed to the group receptionist whose telephone number is 703-305-3900.

The Official Fax Numbers are:

After-final (703) 746-7238
Official (703) 746-7239
Non-Official/Draft (703) 746-7240

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February 24, 2002

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